Title (en)

Method for analyzing a digital-to-analog converter with nonideal analog-to-digital converter.

Title (de)

Methode zur Analyse eines Digital-Analog-Umsetzers mit Hilfe eines nicht idealen Analog-Digital-Umsetzers.

Title (fr)

Méthode pour analyser un convertisseur numérique-analogue par l'intermédiaire d'un convertisseur analogue-numérique non idéal.

Publication

EP 0066504 A1 19821208 (EN)

Application

EP 82400924 A 19820518

Priority

US 26492881 A 19810518

Abstract (en)

A method for statistically calibrating a digital-to-analog converter (14) with an electronic test system. The digital-to-analog converter is excited with two state signals at each input bit which together represent a single signal with uniform amplitude probability with respect to time, and wherein each excitation signal is orthogonal with respect to all other excitation signals. The output x(+) of the digital-to-analog converter (14) is detected by an analog-to-digital converter (16) which has been calibrated by premeasured weighting coefficients with respect to two-state orthogonal signals. The digital time domain output signals are then mapped into a transform domain to obtain weighting coefficients of each bit of the output response. Finally the transform domain weighting coefficients are weighted by the reciprocal of the premeasured weighting coefficients to obtain the unbiased weight of each bit of the digital-to-analog converter under test. A preferred set of excitation signals is a set of Walsh function signals representing the digital equivalent of a linear ramp function.

IPC 1-7

H03K 13/32; G01R 31/28

IPC 8 full level

H03M 1/10 (2006.01); **G06G 7/19** (2006.01); **H03M 1/00** (2006.01)

CPC (source: EP US)

G06G 7/19 (2013.01 - EP US); **H03M 1/1071** (2013.01 - EP US)

Citation (search report)

- [A] US 3816813 A 19740611 - JEHU R
- [AD] IEEE TEST CONFERENCE, CH1608-9/80, Conference record, New York (US), November 11,12,13, 1980, San Diego (US)
- [AD] IEEE INTERNATIONAL AUTOMATIC TESTING CONFERENCE, CH1416-7/78, New York (US), November 25-30, 1978, San Diego (US)
- [A] RADIOFERNSEHEN ELEKTRONIK, vol.27, no.7, July 1978
- [AP] ELECTRONIC DESIGN, vol.29, no.21, October 1981, Waseca, MN, Denville, NJ, (US)
- [A] ELEKTRONIK, vol.28, no.20, October 1979
- [A] IBM TECHNICAL DISCLOSURE BULLETIN, vol.19, no.11, April 1977, New York (US)

Cited by

EP0169147A3; GB2261336A; GB2261336B

Designated contracting state (EPC)

CH DE FR GB IT NL SE

DOCDB simple family (publication)

US 4335373 A 19820615; CA 1187186 A 19850514; DE 3274939 D1 19870205; EP 0066504 A1 19821208; EP 0066504 B1 19861230; JP H0357655 B2 19910902; JP S5820031 A 19830205

DOCDB simple family (application)

US 26492881 A 19810518; CA 403138 A 19820517; DE 3274939 T 19820518; EP 82400924 A 19820518; JP 8252582 A 19820518